

Current Challenges and Opportunities in Informatics in School Teaching

Haqberdiyev Bakhrom Bobonazarovich

Lecturer at the Department of Digital Information Technology,
Denau Institute of Entrepreneurship and Pedagogy, Denau, Uzbekistan

ABSTRACT

The current challenges of teaching computer science in modern schools were discussed, as well as potential solutions. How participants in the educational process interact in the teaching of computer science is demonstrated.

KEYWORDS: *Computer science, information culture, and the systemic character of computer science are some of the terms used in this paper*

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Researchers and teachers all across the world are becoming more interested in the relatively new and fast-emerging discipline of computer science. Computer science is now considered a fundamental science. The study's focus is on information, its structure, and processing methods. In recent years, the school subject "Informatics and IT" has progressed to a new level of quality. Perceptions of computer literacy, in particular, have shifted. When computer science was first introduced in schools, it was thought of as computer literacy, or the ability to program. Everyone now understands that computer science is not a programming course. Teaching high school computer science is one of the toughest and most intriguing jobs available today. A computer science teacher has to keep a close eye on the development of computer technology, the emergence of new programs, and changes in techniques and methods of working with them. The expert is constantly faced with the following questions: "What and how to teach? How do you teach a child to navigate the fast-paced world of information technology?" "To do this, a teacher must constantly improve himself, meet

personal goals, and constantly strive to keep abreast of what is happening in the world of information technology and the pedagogical field.

Students' growth in modern information and communication technologies is aided by studying computer science in school. In the current pandemic, practice demonstrates that pupils apply what they've learned in computer science classes to prepare for other subjects, such as distance communication with teachers, for example, in the process of learning a lesson, which, of course, is done straight from the computer. As a result, unlike any other instructor, a computer science teacher must keep pupils engaged in their classes and the subject. Students' creative growth is also influenced by informatics studies. The computer not only keeps track of the students' work in class, but also assists them in evaluating the benefits and drawbacks of their knowledge, skills, and abilities. Students should not only gain an academic understanding of the subject in informatics classes, but they should also gain technical knowledge of the subject. The classification of tasks will require the

supervision of an expert depending on the temperament of each student to ensure that the assignments are engaging to the student. This exercise encourages pupils to have an optimistic mindset. They can develop more if they have an interest in working with computers. Simply put, kids who have mastered the usage of computers and possess the requisite computer science knowledge and skills will find it easier to study and master other topics in school.

Before discussing the challenges and opportunities of teaching computer science in secondary school, it is necessary to address the primary issue, which is children's comprehension of the relevance of computer science as an academic topic and a clear explanation of its field of application. The knowledge of the Internet, electronic libraries and books, digital audio-video-photo tools, mobile phones, tablets, pocket computers and communicators, social networks, blogs, the knowledge of the modern school student. it is necessary to form an idea that the radical difference between the modern school student of about 10-20 years ago and the modern student, the development of computer science as a science has helped and is helping to achieve great things in the field of science will be.

Based on the above, we can formulate the main problems of computer science teaching:

1. School informatics is the youngest and probably the most problematic of all school subjects (due to the weakness of the material and technical base and staffing).
2. The tasks solved in the study of computer science, as well as other areas of knowledge - physics, mathematics, astronomy, etc., therefore, the study of computer science has a metasubject character.
3. High rates of ICT development lead to the need for teachers to constantly use computer periodicals, Internet resources.
4. Nowadays, children should not only be aware of the existence of computers, but also have an understanding of them, as well as work with them and be able to use them. Informatics is concerned with the methods, tools, and technology for automating, producing, and processing objects and processes. This science not only provides an in-depth study of it, but also the practical application of information, skills, and competencies to help people modernize their knowledge and reduce their learning load. The fundamental knowledge and skills of working with a personal computer as a study object (devices, operating system, software, and

information retrieval methods) are formed. The computer serves as both a learning tool and a tool for completing assigned duties. Due to the difference in the material and cultural level of families, school students have different opportunities to use a computer for homework, to satisfy their interests, and this should also be taken into account in the organization of the learning process.

5. Computer time should be limited to 10 to 30 minutes (depending on the age of the students).
6. In most cases, the amount of computer equipment available is insufficient, necessitating the coordination of small groups' efforts (2-4 students per computer)
7. In general, all of the students in the class enjoy computer science classes, which is due to the fact that the computer is the driving force behind learning the subject. However, as computers become more integrated into many aspects of human life, this enthusiasm is waning.
8. One of the most significant issues in primary school education is the abrupt shift in leadership activities from this game to education. The formation of educational activities frequently fails to meet the child's play needs, causing him great pain. At this point, a smooth transition from play-based activities to education must be organized, mostly through the use of playful didactic computer technology. A computer science instructor must first and foremost learn to teach by playing.

In particular, the above problems are related to the teaching of computer science in primary school, because the study of computer science is an integral part of modern general education, the formation of a new integrated worldview and information worldview in the younger generation, modern computer information processing as a tool. There are different opinions about the age at which to start teaching children how to use a computer. Modern research by doctors, psychologists, and teachers shows that working with a computer while meeting hygiene and ergonomic requirements does not adversely affect the health of elementary school students. If you give children space to implement their ideas quickly and concisely without overloading them, they will more actively develop their ability to orient themselves on the plane, train attention and memory, and develop imagination and creativity. In order to continuously study the primary school course, it is necessary to emphasize the relevance of the study of logically complex topics at the level of timely introduction in

the propaedeutic course "Informatics and ICT" from 1st grade. The main purpose of studying the subject of "Computer Science and ICT" in primary school is to form in students the basics of ICT - competence, many components of which are included in the universal educational movement. This sets the core values for the content of this course. The following competencies are most valuable for the results of meta-subject teaching, as well as for achieving a high level of continuing education (including teaching the subject of "Computer Science and ICT" at the intermediate and advanced levels), which is reflected in the course content:

1. Fundamentals of logical and algorithmic competence, specifically the ability to master the fundamentals of logical and algorithmic thinking, to act in accordance with the algorithm, and to create the simplest algorithms.
2. Funding the fundamentals of information literacy, including methods and techniques for searching, retrieving, and presenting information in a variety of formats, such as text, tables, diagrams, chains, and aggregates.
3. Learning the fundamentals of ICT abilities, particularly how to solve information problems using computers (and other ICT instruments).
4. The fundamentals of effective communication. Within this subject, the aspects of communication competence related to the reception and transmission of information are most actively formed. This includes aspects of linguistic competence related to mastering the system of information concepts and using language to receive and transmit information.
5. Informatics classes form a systematic understanding of the world, develop an understanding of various natural and social phenomena, integrated information communication of system thinking, the level of which is mainly determined by the ability to quickly process information and make decisions based on it. 'requires additional capabilities from anesthetists. - use of more and more new methods and training manuals [4, s.178].

The curriculum of a computer science school course must, to some extent, reflect the present state of the field as well as societal needs. Computer technology, first and foremost, the rapid development of personal

computers and their software, as well as the introduction of children to the complex world of modern computer science, necessitates the training and retraining of specialists capable of teaching children the science of information using new information technologies, as well as the training and retraining of specialists capable of teaching children the science of information using new information technologies.

Solving these issues and unfinished tasks will be unachievable without bettering teaching methods based on computer science teaching concepts of continuity and consistency. Informatics is increasingly influencing the subsequent development processes of society. It becomes a dominant factor determining the overall potential of a society and its development prospects. Informatization of society is the most important component of modern civilization, which is characterized by high levels of information and communication technologies and advanced information structures. Informatics is essentially transforming from technology to a fundamental science of information and information processes in nature and society.

The overall educational and practical significance of the computer science course at school is growing steadily and rapidly. The course has great humanitarian potential. It is already playing an important role in preparing the younger generation for effective activities in the information society.

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